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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/033,327

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Ulrich Martin Graf

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01/28/2004

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EXAMINER

HO, ALLEN C

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/033,327

Applicant(s)

GRAF, ULRICH MARTIN

Examiner

Allen C. Ho

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2882



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, one of at least one second radiation source is attached to a sliding mechanism capable of extending and retracting the second radiation source from the second gantry as claimed in claim 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a diagnostic energy source attached to a translatable end of a second gantry as claimed in claim 26 must be shown or the feature(s) canceled must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, one of the at least one second radiation source is attached to a mechanism of extending and retracting the second radiation source from the second gantry as claimed in claim 27 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

*Claim Objections*

4. Claims 4 and 5 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 4 and 5 recite the radiation source is capable of propagating energy. By definition, propagating energy is what a radiation source does.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-27 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a diagnostic x-ray source, does not reasonably provide enablement for a diagnostic radiation source. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

As understood by persons skilled in the art, radiations comprise a broad spectrum of electromagnetic and particle fields. The only kind of diagnostic radiations generated by the apparatus disclosed by the applicants are x-rays in keV range. Specifically, x-rays are generated

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by an x-ray source (paragraph [0029]). The applicant failed to describe performing diagnostic imaging using other forms of radiations.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3-10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanover (U. S. Patent No. 6,104,780) in view of Watanabe (U. S. Patent No. 6,325,537 B1).

With regard to claim 1, Hanover *et al.* disclosed an apparatus (Fig. 2) comprising: a first therapeutic (x-ray is therapeutic) radiation source (140) attached to a first gantry (116); at least one second radiation source (142); a second gantry (118) that is rotatable, the second gantry is attached to the first gantry; and an imager (146).

However, Hanover *et al.* did not teach that the imager is attached to an articulable end of the second gantry.

Watanabe disclosed a C-shaped gantry (14) that comprises an imager (16) attached to an articulable end (20) of the gantry and a rotatable x-ray source (12). This arrangement makes the apparatus applicable to a wide range of clinical applications (column 4, lines 29-51).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the C-shaped gantry disclosed by Hanover *et al.* to include an

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imager attached to an articulable end of the gantry and a rotatable x-ray source according to Watanabe, since a person would be motivated to use the same apparatus for as many different clinical applications as possible, which is less expensive than purchasing additional application-specific equipments.

With regard to claim 3, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 1, wherein at least one second radiation source is attached to the second gantry.

With regard to claim 4, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 1, wherein the first radiation source is capable of propagating therapeutic energy (x-rays could be used as therapeutic radiations).

With regard to claim 5, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 1, wherein at least one second radiation source is capable of propagating diagnostic energy (x-ray).

With regard to claim 6, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 1, wherein the first gantry is rotatable.

With regard to claim 7, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 6, wherein the first gantry and the second gantry are rotatable about a common pivot axis (Hanover *et al.* 132).

With regard to claim 8, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 1, wherein the imager is a multiple-energy imaging unit (all x-ray imagers are sensitive to a range of energies).

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With regard to claim 9, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 1, wherein the articulable end includes at least one pivot point between the second gantry and the imager (Watanabe Fig. 2).

With regard to claim 10, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 1, wherein the articulable end includes a sliding mechanism (Watanabe Fig. 9) capable of translating the imager in a plane.

With regard to claim 12, Hanover *et al.* as modified Watanabe disclosed the apparatus of claim 1, wherein the articulable end (Watanabe 20) is capable of folding the imager against the second gantry.

With regard to claim 13, Hanover *et al.* as modified by Watanabe disclosed the apparatus of claim 7, wherein the second gantry is nestled within the first gantry (Hanover *et al.* Fig. 2).

### ***Allowable Subject Matter***

9. Claims 2, 11, and 14-27 are allowed over prior art.

10. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 2, the prior art fails to teach or fairly suggest at least one second radiation source is attached to the first gantry as claimed.

With regard to claim 11, the prior fails to teach or fairly suggest one of at least one second radiation source is attached to a sliding mechanism capable of extending and retracting the second radiation source from the second gantry as claimed.

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With regard to claims 14-21, the prior art fails to teach or fairly suggest a step of positioning an imager at one of a plurality of distances from the target volume to receive radiation from the diagnostic radiation source as claimed.

With regard to claims 22-25, the prior art fails to teach or fairly suggest a step of retracting the first radiation source and positioning a second radiation source along the first axis as claimed.

With regard to claim 26, the prior art fails to teach or fairly suggest that a diagnostic energy source is attached to a translatable end of a secondary gantry as claimed.

With regard to claim 27, the prior art fails to teach or fairly suggest one of the at least one second radiation source is attached to a mechanism capable of extending and retracting the second radiation source from the second gantry as claimed.

### ***Response to Arguments***

11. With regard to the objection to the drawings under CFR 1.83(a) for failing to show internal seed acting as markers, the examiner agrees to withdraw the objection since this feature is not necessary for understanding the invention.

12. With regard to the objection to the drawings under CFR 1.83(a) for failing to show a diagnostic source attached to a translatable end of a second gantry, the objection is to be maintained since this feature is essential for understanding the invention.

13. With regard to claims 1, 3-10, 12, 13, the applicant argues that amended claim 1 is not obvious under 35 USC 103 (a) over Hanover in view of Watanabe. The examiner would like to point out that x-ray is a therapeutic radiation. Therefore, the rejections are being maintained.



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14. With regard to claims 14-21, the rejections are withdrawn in response to the amendment.
15. With regard to claim 26, the examiner agrees to withdraw the rejection since there is a lack of motivation for providing a second gantry with a translatable end.

### *Conclusion*

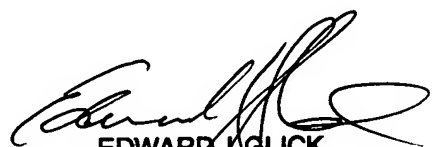
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1550.

Allen C. Ho  
Patent Examiner  
Art Unit 2882

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EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER